

Discharges from Irrigated Lands



Irrigated Lands Program Monitoring

Central Valley Regional Water Quality Control Board

Irrigated Lands Program Sediment Toxicity Focus Group Focus Group Status and Recommendations

Technical Issues Committee Meeting
May 9, 2006

Issues Discussed Within the Sediment Toxicity Focus Group

- Requirement to analyze for sediment toxicity
- Timing and frequency of sampling
- Trigger for follow up actions
- ID of cause of toxicity
 - Approach and method
 - Analytical method details
- ID of source of toxicity

Requirement to Analyze for Sediment Toxicity

- Narrative objectives for toxicity and pesticides in Basin Plan
- Increased use of hydrophobic pesticides
- Persistent legacy pesticides
- Potential for sediment transport and impairments from ag discharges

Timing and Frequency of Sampling

- “Sediment testing using the invertebrate species *Hyaella*...or *Chironomus*...shall be conducted...”
- Both 0833 and Draft MRPs indicate monthly irrigation season monitoring and two storm events (for water) and one “dormant season” and one “irrigation season” sample for sediment

Timing and Frequency of Sampling

- Concern over health and safety
- Need for clarification of requirement
- Consistency

Trigger for Follow-up Actions

- Currently no numeric sediment quality criteria
 - No routine chemical testing
- Toxicity
 - Need to determine cause and source to mitigate
 - Significant toxicity at the end of an acceptable test and >20% reduction in survival

Identification of Cause of Toxicity

- TIEs
 - Reproducible, reliable, approved methods do not exist for sediment
 - Research currently underway
 - Not recommended at this time, revisit in 1-2 years
- Chemical analysis
 - About 25-30% of Coalition and ILP/UCD/UCB ag samples toxic to *Hyalella*
 - Four pyrethroids and chlorpyrifos account for the observed toxicity in about 75% of the ILP toxic samples

Identification of Cause of Toxicity

- Chemical analysis (continued)
 - Analytical methodology for pyrethroids, chlorpyrifos and TOC (1 ug/kg dry weight for pesticides at 23C is less than LC50)
 - Toxic response of *Hyalella* to pyrethroid and other pesticides is dependent on TOC content
 - Research on unexplained toxicity continues

Identification of Source of Toxicity

- No recommendation yet.
- Source tracing success more likely than with water, but no precedent yet
- Limited causes of toxicity will likely increase utility of pesticide use data

Other Issues

- Re-sample to determine persistence
 - Not discussed in detail, but is different issue than water
- Chironomus
 - MRP and EPA method allow either of two species
 - Follow up actions based on Hyalella
 - Coalitions currently use Hyalella
- Methods
 - 8270, 8081A, other
- Accreditation
 - None for pyrethroids
 - Round robin testing through RWQCB

Summary and Recommendations

Recommendation #1: Follow-up to Observed Toxicity

- Follow up action to observed toxicity
 - Applies to *Hyalella* only, but focus group should refine the language
 - Collect and freeze additional sample volume
 - If toxic, analyze for bifenthrin, lambda-cyhalothrin, cypermethrin, deltamethrin, esfenvalerate, fenpropathrin, chlorpyrifos, TOC, grain size
- No dissent to this recommendation – further clarification needed (*Hyalella* only)

Recommendation #2: Timing and Frequency of Sampling

- Status – more discussion?
- Process
- From each identified monitoring location, one sediment sample between Aug. 15 and Oct. 15, and one sample between Mar. 15 and Apr. 30
- Additional sample in Dec.-Feb. time frame?